

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 2 and 3 were missing in the original application, so Examiner renumbered Claims 4-25, 2-23. Numbers as follows are the new numbers.

Claims 1 – ~~11~~ (cancelled) [i.e. original claims 1 and 4-13 (cancelled)]

Claim 12 (currently amended) A process for stimulating nerves for conducting nerve research and investigations and/or treatments, said system comprising:

- A) generating pulses of infrared light with a diode laser,
- B) controlling said ~~diode~~ laser to produce laser pulses of desired duration and power to produce a desired pulse power profile,
- C) directing a portion or all of said pulses ~~of~~ infrared light to a target comprising a single type of at least one nerve or a portion of at least one nerve so as to produce single type of ~~mode~~ stimulation of nerve fibers.

Claim 13 (currently amended) The process as in claim 12 wherein said infrared light(is infrared light at wavelengths of about 980 nm.

Claim 14 (currently amended) The process as in claim 12 wherein said single type of nerve fibers is are C fiber nociceptors.

Claim 15 (currently amended) The process as in claim 12 wherein said single type of nerve fibers is are A-delta fiber nociceptors.

Claim ~~16~~ (cancelled) ~~The process as in claim 11 wherein said target comprises an ion channel.~~

Claim 17 (currently amended) The process as in claim 12 wherein said controller comprises a personal computer.

Claim ~~18~~ (currently amended) The process as in claim 12 and further comprising a temperature sensor for sensing temperature of said target.

Claim ~~19~~ (currently amended) The process as in claim ~~18~~ wherein said temperature sensor is configured to provide a temperature signal to said controller and said controller is programmed to utilize said temperature to provide feedback control of said laser in order to provide a desired temperature profile at said target.

Claim 20 (currently amended) The process as in claim 12 wherein said controller is programmed to provide laser pulsed according to a predetermined pulse energy profile to produce pain but no tissue injury.

Claim 21 (currently amended) The process of claim 12 and further comprising the steps of increasing of power for pulse duration 50-150 ms from power level of 0.5 W with step less than 0.2 W with a diameter of irradiation area 0.5-2 mm lead to produce clear monomodal (single) pin prick pain and selective activation of A delta fibers.

Claim 22 (currently amended) The process of claim 12 and further comprising the steps of increasing of pulse duration from 0.3 to 20 sec with power level around 1.5 W with a diameter of irradiation area 5 mm-15 mm lead to inducing of clear monomodal hot pain and selective activation of C nociceptors.

Claim 23 (currently amended) The process of claim 12 and further comprising the steps of: increasing of power for pulse duration of 400-500 ms with a diameter of irradiated area 3-5 mm may induce clear single hot pain or clear single warmth sensation and selective activation of C fibers.

Claim 24 (newly presented) The process as in Claim 15 wherein the single type of stimulation is prick pain stimulation.

Claim 25 (newly presented) The process as in Claim 14 wherein the single type of stimulation is warmth sensation.

Claim 26 (newly presented) The process as in Claim 14 wherein the single type of stimulation is single hot pain.

Claim 27 (newly presented) The process as in Claim 12 wherein the single type of nerve is a single nerve cell.